

PATENT**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Application No.: 10/031,911
International Application: PCT/DK00/00354
International Filing Date: June 30, 2000

Applicant: Torben Bach PEDERSEN et al.
Group Art Unit: Unknown
Examiner: Unknown
Title: METHOD AND SYSTEMS FOR MAKING OLAP HIERARCHIES SUMMERISABLE
Attorney Docket: 45900-000718/US

INFORMATION DISCLOSURE STATEMENT

Commissioner of Patents and Trademarks
Washington, D.C. 20231

April 19, 2002

Sir:

Pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98, Applicant hereby submits an Information Disclosure Statement for consideration by the Examiner.

I. LIST OF PATENTS, PUBLICATIONS, AND OTHER INFORMATION

The patents, publications and other information submitted for consideration by the Office (except unpublished U.S. patent applications) are listed on Form 1449 attached hereto.

II. COPIES

A. Submitted herewith is a legible copy of (i) each U.S. patent application publication and U.S. and foreign patent; (ii) each publication or that portion which caused it to be listed; (iii) for each cited pending U.S. application, the application specification including the claims, and any drawing of the application which caused it to be listed including the claims directed to that portion; and (iv) all other information or that portion which caused it to be listed.

B. Any patents, publications or other information which are listed on Form 1449 or on the copies of PTO-892, but which are not enclosed herewith, were previously cited by or

submitted to the PTO in one of the following applications which has been relied upon for an earlier filing date under 35 U.S.C. § 120:

U.S. Serial Number

U.S. Filing Date

C. This is a PCT application in the entry of the National Phase in the United States. A copy of the International Search Report is attached for the Examiner's information. The documents listed on the International Search Report are listed on the attached Form-1449 for consideration by the Examiner and for listing on any patent resulting from this application. Since the International Search Report was from the US, EPO, or JPO search authorities, copies of these references should have been supplied to the USPTO under the trilateral agreement and are believed to be in the file of the above-identified application. (MPEP 1893.03(g))

III. CONCISE EXPLANATION OF THE RELEVANCE (check at least one box)

A. Except as may be indicated below in (B), all of the patents, publications or other information are in the English language (concise explanation not required).

B. A concise explanation of the relevance of each patent, publication or other information listed that is not in the English language is as follows (see 37 C.F.R. § 1.98(a)(3)):

1. See the attached foreign search report.
2. English translations are provided for:
3. Other:

C. The following additional information is provided for the Examiner's consideration.

We have provided a copy of the International Search Report.

IV. CROSS REFERENCE TO RELATED APPLICATION(S)

A. The Examiner is advised that the following co-pending application(s) contain(s) subject matter that may be related to the present application. A copy of each co-pending application is attached for the Examiner's information. By bringing this(these) application(s) to the Examiner's attention, Applicant(s) does(do) not waive the confidentiality provisions of 35 U.S.C. § 122.

Serial No.

Filing Date

Art Unit

V. THIS IDS IS BEING FILED UNDER

A. 37 C.F.R. § 1.97(b): (check only one box)

1. within three months of the filing date of a national application other than a continued prosecution application under § 1.53(d) (37 C.F.R. § 1.97(b)(1)). No fee or certification is required.
2. within three months of the date of entry of the national stage as set forth in §1.491 in an international application (37 C.F.R. § 1.97(b)(2)). No fee or certification is required.
3. before the mailing of a first Office Action on the merits (37 C.F.R. § 1.97(b)(3)). No fee or certification is required. In the event that a first Office Action on the merits has been issued, please consider this IDS under 37 C.F.R. § 1.97(c) and see the certification under 37 C.F.R. § 1.97(e) below; or, if no certification has been made, charge our deposit account a fee in the amount of \$180.00 as required by 37 C.F.R. § 1.17(p).
4. _____ before the mailing of a first Office Action after the filing of a request for continued examination under 37 C.F.R. § 1.114. No fee or certification is required.

B. 37 C.F.R. § 1.97(c): (check only one box)

before the mailing date of either any Final Office Action under 37 C.F.R. § 1.113, a Notice of Allowance under 37 C.F.R. § 1.311, or an action that otherwise closes prosecution.

1. No certification; therefore, a fee in the amount of \$180.00 is required by 37 C.F.R. § 1.17(p).
2. See the certification below. No fee is required.

C. 37 C.F.R. § 1.97(d):

after the mailing date of either a Final Office Action under 37 C.F.R. § 1.113 or a Notice of Allowance under 37 C.F.R. § 1.311, yet on or before payment of the issue fee.

1. See the certification below. A fee in the amount of \$180.00 is required by 37 C.F.R. § 1.17(p).

VI. CERTIFICATION UNDER 37 C.F.R. § 1.97(e): (check only one box)

The undersigned hereby certifies that:

- each item of information contained in this IDS was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS (See 37 C.F.R. § 1.97(e)(1)); or
- no item of information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in this IDS was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this IDS (See 37 C.F.R. § 1.97(e)(2)).
- Some of the items of information were first cited in a communication from a foreign patent office. As to this information, the undersigned hereby certifies that each item of information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this IDS. As to the remaining information, the undersigned hereby certifies that no item of this remaining information contained in this IDS was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in this IDS was known to any individual designated in 37 C.F.R. § 1.56(c) more than three months prior to the filing of this IDS.

VII. PAYMENT OF FEES (check only one box)

- A check in the amount of \$180.00 is enclosed for the above-identified fee.
- Please charge Deposit Account No. 08-0750 in the amount of \$180.00 for the above-indicated fee. A duplicate copy of this paper is attached.

The above references are being cited only in the interest of candor and without any admission that they constitute statutory prior art, contain matter which anticipates the invention, or which would render the same obvious, either singly or in combination, to a person of ordinary skill in the art. Furthermore, this Information Disclosure Statement shall not be construed as a representation that a search has been made.

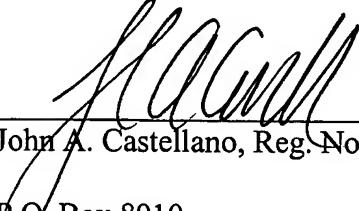
If it is determined that this IDS has been filed under the wrong rule, the PTO is requested to consider this IDS under the proper rule (with a petition if necessary) and charge the appropriate fee to Deposit Account No. 08-0750.

Please charge any additional fees or credit any overpayment pursuant to 37 C.F.R. § 1.16
or § 1.17 to Deposit Account No. 08-0750.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By


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JAC/cah

FORM HDP-1449 (Based on Form PTO-1449)

PATENT AND TRADEMARK OFFICE
INFORMATION DISCLOSURE CITATION
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Sheet 1 of 4



ATTORNEY DOCKET NO.	SERIAL NO.
45900-000718/US	10/031,911
APPLICANT	
Torben Bach Pedersen et al.	
FILING DATE	GROUP
June 30, 2000	Unknown

U.S. PATENT DOCUMENTS

Ref. Desig.	Examiner's Initials	Document Number	Date	Name	Class/ Subclass	(If appropriate) Filing Date

FOREIGN PATENT DOCUMENTS

Ref. Desig.	Examiner's Initials	Document Number	Date	Country	Class/ Subclass	Translation Yes	Translation No

OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)

Ref. Desig.	Examiner's Initials	
		E. Baralis et al., "Materialized View Selection in a Multidimensional Database", Proceedings of the 23 rd International Conference, pp 156-165, 1997
		E.F. Codd et al., "Providing OLAP to User-Analysts: An It Mandate", Technical report, E.F. Codd & Associated, 1993
		D. Srivastava et al., "Answering Queries with Aggregation Using Views", In Proceedings of the Twenty-Second International Conference on VLDB, pp. 318-329, 1996
		P.M. Deshpande et al., "Cubing Algorithms, Storage Estimation, and Storage and Processing Alternatives for OLAP", IEEE Date Engineering Bulletin, 20(1):3-11. 1997
.	.	V. Harinarayan, "Issues in Interactive Aggregation", IEEE Date Engineering Bulletin, 20(1):12-18, 1997
.	.	C. Dyreson, "Using an Incomplete Data Cube as a Summary Data Sieve", IEEE Date Engineering Bulletin, 20(1):19-26
.	.	T. Johnson et al., "Some Approaches to Index Design for Cube Forests", IEEE Date Engineering Bulletin, 20(1):27-35
.	.	S. Sarawagi, "Indexing OLAP Data", IEEE Date Engineering Bulletin, 20(1):36-43
.	.	C.E. Dyreson, "Information Retrieval from an Incomplete Data Cube" Proceedings of the Twenty-Second Conference on VLDB, pp. 532-543, 1996
.	.	J. Gray et al., "Data Cube: A Relational Aggregation Operator Generalizing Group-By, Cross-Tab, and Sub-Totals", Data Mining and Knowledge Discovery, 1(1):29-54, 1997
.	.	A. Gupta et al., "Aggregate Query Processing in Data Warehousing Environments", Proceedings of the Twenty-First International Conference on VLDB, pp. 358-369, 1995
.	.	H. Gupta et al., "Index Selection for OLAP", Proceedings of the Thirteenth International Conference on Date Engineering, pp 208-219, 1997
.	.	H. Gupta, "Selection of Views to Materialize in a Data Warehouse", Proceedings of the Sixth International Conference on Database Theory, pp.98-112, 1997

Examiner:

Date Considered:

EXAMINER: Please initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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Ref. Desig.	Examiner's Initials
	H. Gupta et al., "Selection of Views to Materialize Under a Maintenance Cost Constraint" Proceedings of the Seventh International Conference on Database Theory, pp. 453-470, 1999
	V. Harinarayan et al., "Implementing Data Cubes Efficiently", Proceedings of the ACM SIGMOD International Conference on the Management of Data, pp 205-216, 1996
	Hyperion Corporation, "Hyperion Essbase OLAP Server", URL:<www.hyperion.com/downloads/essbaseolap.pdf> Current as of February 17, 1999
	Informix Corporation, "Data Warehouse Administrator's Guide: MetaCube ROLAP Option for Informix Dynamic Server", URL: <www.informix.com/answers/english/pdf_docs/metacube/4189.pdf>. Current as of February 15, 1999
	R. Kimball, The Data Warehouse Toolkit, Wiley Computer Publishing, 1996. Chapter 1 pp. 1-19; Chapter 6 pp. 89-105; Chapter 7 p. 107 and Appendix D pp. 321-366
	R. Kimball, "Data Warehouse Architect: Help with Multi-Valued Dimension", DBMS Magazine, 11(9), 1998.
	H. Lenz et al., "Summarizability in OLAP and Statistical Data Bases", Proceedings of the Ninth International Conference on Statistical and Scientific Database Management, pp. 39-48, 1997
	Microsoft Corporation, "OLE DB for OLAP" Version 1.0 Specification, Microsoft Technical Document 1998
	Microsoft Corporation, "OLAP Services White Paper. URL: <www.microsoft.com/sql/70/whpprs/olapoverview.htm> Current as of February 9, 1999
	I.S. Mumick et al., "Maintenance of Data Cubes and Summary Tables in a Warehouse", Proceedings of the ACM SIGMOD International Conference on the Management of Data, pp. 100-111, 1997
	The OLAP Council, "MDAPI Specification Version 2.0" OLAP Council Technical Document, 1998

Examiner:

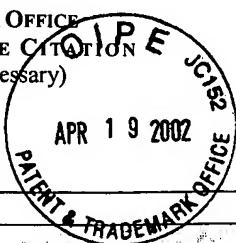
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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)

Ref. Desig.	Examiner's Initials	
		The OLAP Report, "Database Explosion", URL:<www.olapreport.com/Database-Explosion.htm> Current as of February 10, 1999
		T.B. Pedersen et al., "Multidimensional Data Modeling for Complex Data" Proceedings of the Fifteenth International Conference on Data Engineering, 1999.
		T.B. Pedersen et al., "Multidimensional Data Modeling for Complex Data" Proceedings of the Fifteenth International Conference on Data Engineering, Extended version available as TimeCenter Technical Report TR-37, URL: <www.cs.auc.dk/TimeCenter>, 1998
		T.B. Pedersen et al., "Extending Practical Pre-Aggregation in On-Line Analytical Processing", Proceedings of the 25 th VLDB Conference, pp. 663-674, 1999.
		T.B. Pedersen et al., "Extending Practical Pre-Aggregation in On-Line Analytical Processing", Proceedings of the 25 th VLDB Conference, pp. 663-674, Extended version available as TR R-99-5004, Dept. of Comp. Sci., Aalborg University, <www.cs.auc.dk/~tbp/articles/R995004.ps>, 1999
		D. Quass et al., "On-Line Warehouse View Maintenance", Proceedings of the ACM SIGMOD International Conference on the Management of Data, pp. 393-404, 1997.
		M. Rafanelli et al., "STORM: A Statistical Object Representation Model" Proceedings of the Fifth International Conference on Statistical and Scientific Databases Management, pp. 14-29, 1990
		A. Segev et al., "Selective View Materialization in Data Warehousing Systems", Working Paper, URL: <ftp://segev.lbl.gov/pub/LBL_DB_PUBLICATIONS/1997/aggregdw.ps> Current as of February 9, 1999.
		A. Shukla et al., "Storage Estimation for Multidimensional Aggregates in the Presence of Hierarchies", Proceedings of the Twenty-Second International Conference on VLDB, pp. 522-531, 1996
		D. Theodoratos et al., "Data Warehouse Configuration", Proceedings of the Twenty-Third International Conference on VLDB, pp. 126-135, 1997.
		J. Widom, "Research Problems in Data Warehousing" Proceedings of the Fourth International Conference on Information and Knowledge Management, pp. 25-30, 1995

Examiner:

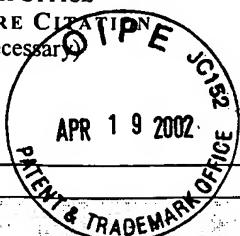
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OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, etc.)

Ref. Desig.	Examiner's Initials	
		R. Winter, "Databases: Back in the OLAP game", Intelligent Enterprise Magazine, 1(4):60-64, 1998
		World Health Organization, "International Classification of Diseases (ICD-10). Tenth Revision", 1992
		J. Yang et al., "Algorithms for Materialized View Design in Data Warehousing Environment" Proceedings of the Twenty-Third International Conference on VLDB, pp.136-145, 1997
		H.J. Lenz et al., "Summarizability in OLAP and Statistical Data bases", Scientific and Statistical Database Management, 1997. Proceedings, Ninth International Conference, pp. 132-143
		I.S. Mumick, "Maintenance of Data Cubes and Summary Tables in a Warehouse", AT&T Laboratories, 1997. URL: < http://citeseer.nj.nec.com/did/38362 >

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